REMARKS

Applicant has rewritten portions of the specification. The changes from the previous version to the rewritten version are shown in attached Appendix A, with strikethrough for deleted matter and underlines for added matter.

Respectfully submitted,

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APPENDIX A
Attorney Docket No. 10125-4105
Thin Film Transistor, Method of Producing the Same, Liquid Crystal Display, and thin Film Forming Apparatus
Inventor Chae Gee Sung

In the Specification

Please amend the paragraph on page 1, lines 13-23 as follows:

(Amended) Fig. 14 ~~concerns with~~relates to a conventional ordinary liquid crystal display using thin film transistors (hereinafter referred to as TFTs), and illustrates one example of the structure of a TFT array board including TFTs of the reverse stagger type, gate lines, source lines, etc. In such a TFT array board, as shown in Fig. 14, gate lines 50 and source lines 51 are arranged on a transparent substrate in a matrix pattern. Each of areas surrounded by the gate lines 50 and the source lines 51 serves as one pixel 52, and a TFT 53 is provided for each pixel 52. Fig. 15 is a sectional view showing a construction of the TFT 53.

Please amend the paragraph beginning on page 1, last line and ending on page 2, line 19 as follows:

(Amended) In the TFT 53, as shown in Fig. 15, a gate electrode 55 ~~led~~leading out of the gate line 50 is formed on a transparent substrate 54, and a gate insulating film 56 is formed in covering relation to the gate electrode 55. A semiconductor active film 57 made of amorphous silicon (a-Si) is formed on the gate insulating film 56 at a position above the gate electrode 55. A source electrode 59 ~~led~~leading out of the source line 51 and a drain electrode 60 are formed to extend over the semiconductor active film 57 through an ohmic contact layer 58 which is made of amorphous silicon (a-Si:n^+) containing an n-type impurity such as phosphorous, and then on the gate insulating film 56. A passivation film 61 is formed in covering relation to the TFT 53 made up of the source electrode 59, the drain electrode 60, the gate electrode 55, etc., and a contact hole 62 is formed in the passivation film 61 at a position above the drain electrode 60. Further, a pixel electrode 63 formed of a transparent conductive film, such as indium tin oxide (hereinafter referred to as ITO), is filled in the contact hole 62 for electrical connection to the drain electrode 60.

Please amend the paragraph beginning on page 2, line 20 and ending on page 3, line 9 as follows:

(Amended) Of the components of the TFT thus constructed, the gate insulating film located between the gate electrode and the semiconductor active film is the most important component that dominates electrical characteristics and reliability of the TFT. Also, the gate insulating film is ~~a factor~~an element that is responsible for the occurrence of surface defects. For an amorphous-silicon TFT using amorphous silicon as a material of the semiconductor active film, a redundant structure endurable against defects has been tried by employing a two-layered gate insulating film structure wherein gate insulating films are formed as two stacked layers using different materials and different methods. In one example of such a structure, the two stacked layers are a dense film of Ta_2O_5 formed by anode-oxidizing tantalum (Ta) of the gate electrode and a film of Si_3N_4 deposited by the plasma CVD.

In the Claims

Please amend Claim 3 as follows:

3. (Amended) A method of producing a thin film transistor, ~~according to Claim 1,~~ said method comprising: ~~es the steps of~~

preparing a plasma CVD apparatus including a radio-frequency electrode and a susceptor electrode disposed in opposed relation and installed in a film forming chamber;

bringing a gas mixture of silane gas and ammonia gas into a plasma state under a desired radio-frequency electric field formed between said radio-frequency electrode and said susceptor electrode, thereby forming a first gate insulating film on a gate electrode formed on a substrate;

bringing a gas mixture having the same composition as said gas mixture into a plasma state under a greater radio-frequency electric field than said radio-frequency electric field, thereby forming a second gate insulating film on said first gate insulating film; and

forming a semiconductor active film on said second gate insulating film.

Please amend Claim 4 as follows:

4. (Amended) A method of producing a thin film transistor, ~~according to Claim 1,~~ said method comprising: ~~the steps of~~

preparing a plasma CVD apparatus including a radio-frequency electrode and a susceptor electrode disposed in opposed relation and installed in a film forming chamber;

bringing a gas mixture of silane gas and ammonia gas into a plasma state under a desired radio-frequency electric field formed between said radio-frequency electrode and said susceptor electrode, thereby forming a first gate insulating film on a gate electrode formed on a substrate;

bringing a gas mixture, in which silane gas and ammonia gas are mixed at such a mixing ratio as containing the ammonia gas at a greater proportion relative to the silane gas than in said mixture gas, into a plasma state under a radio-frequency electric field having the same intensity as said radio-frequency electric field, thereby forming a second gate insulating film on said first gate insulating film; and

forming a semiconductor active film on said second gate insulating film.